

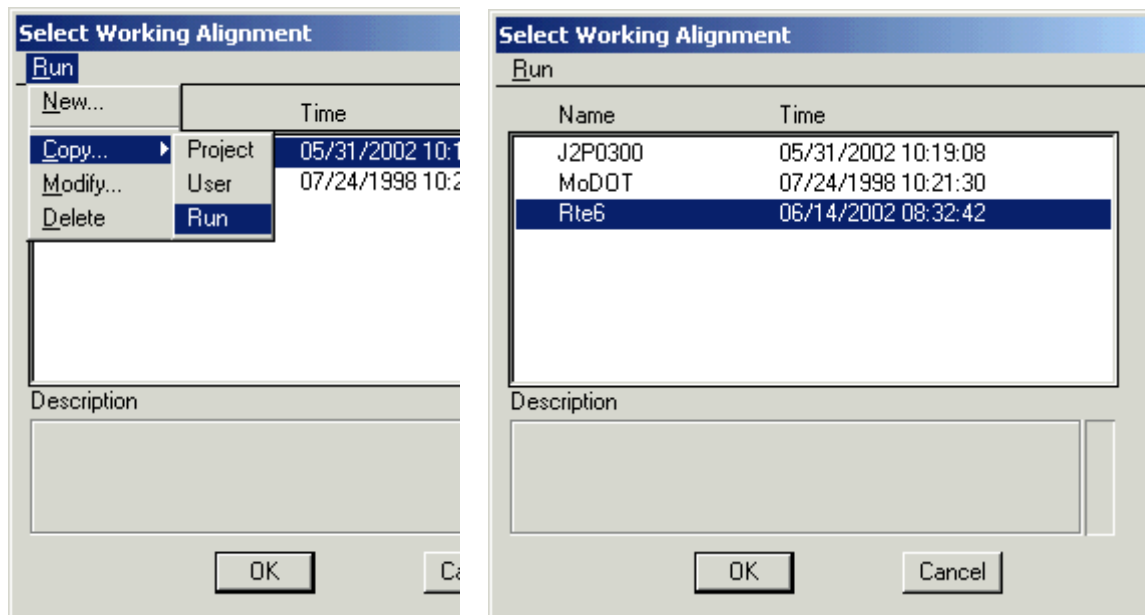
# GEOPAK Road for Bridge Exercise 11-1 Vertical Alignments

## Exercise 11-1 This is a group exercise

1. Open the MicroStation file **t:\br-proj\br-geopak\d2\j2p0300\data\plan\_j2p0300.dgn**.

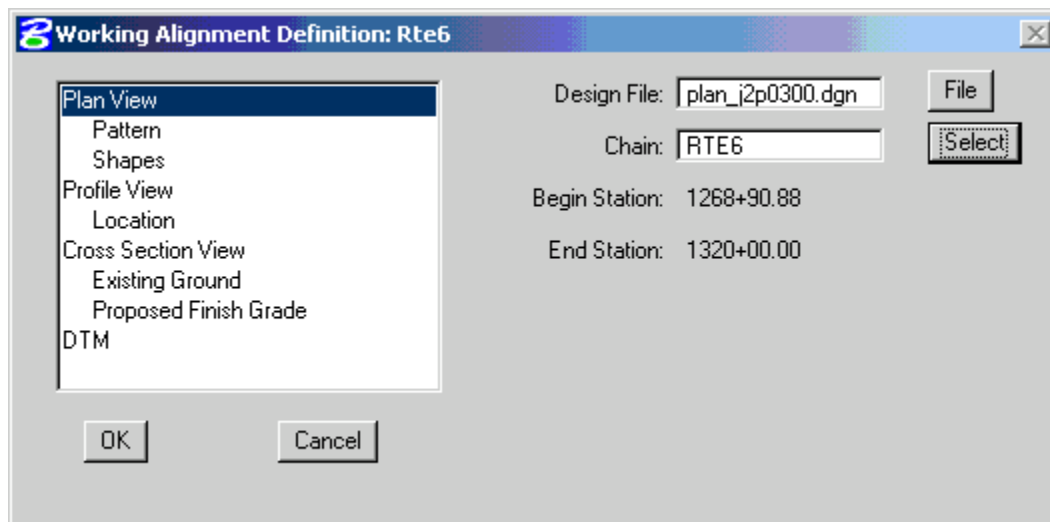
2. Open the project **j2p0300.prj** and enter **Road** as user **userc**.

Copy the J2P0300 working alignment to **Rte6** and enter the Rte6 working alignment.



3. Enter the Rte6 Working Alignment Definition by clicking on **Define** in the Road Project dialog.

Set the chain to **Rte6** in the Plan View section of the dialog as shown below.



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4. Choose **Existing Ground Profile** from the **Road Project** flow chart.

Existing Ground  
Profile

Copy the **MoDOT** run, name the new run **Rte6** and enter the new run.

5. Create an original ground profile for the project.

Profile Name:                    **Rte6EX.**  
Job Number:                    **300.**  
Operator:                        **cu.**  
Chain:                           **Rte6.**  
Offset:                           **0.**  
Beg. Station:                   *Will be filled in when chain is chosen.*  
End Station:                   *Will be filled in when chain is chosen.*  
Mode:                           **Intersect      TIN.**  
TIN File:                        **j2p0300.tin.**

GEOPAK Ground Profile

Profile Name: Rte6EX Select

Job Number: 300

Operator: cu

Chain: RTE6 Select

Offset: 0.000

Beg Station: 1268+90.881

End Station: 1319+99.999

Intersect TIN

Radius of output circle: 10.0

TIN File: J2P0300.TIN Files

Apply

6. Open the MicroStation file

**t:\br-proj\ a\_geopak \_d2\j2p0300\data\profile\_j2p0300.dgn.**

Attach the file **t:\br-proj\ a\_geopak \_d2\j2p0300\data\plan\_j2p0300.dgn** as a reference file, if it is not already attached, and fit the screen.

## GEOPAK Road for Bridge Exercise 11-1 Vertical Alignments

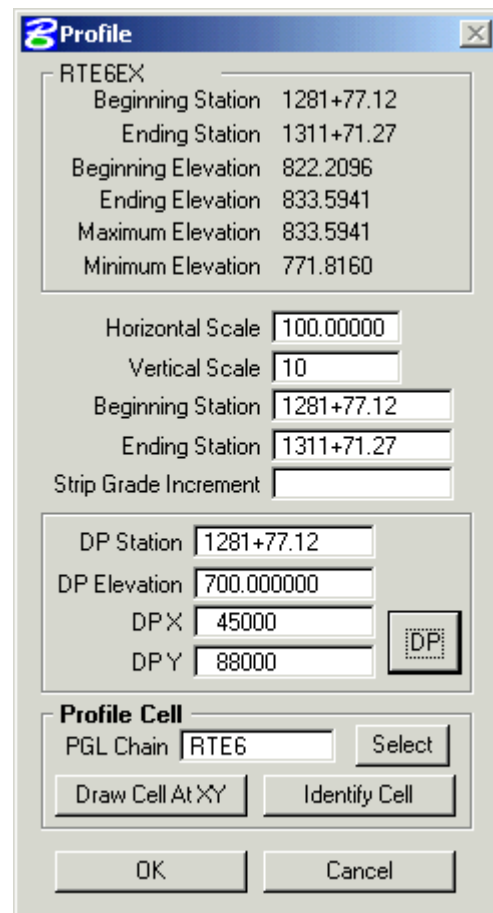
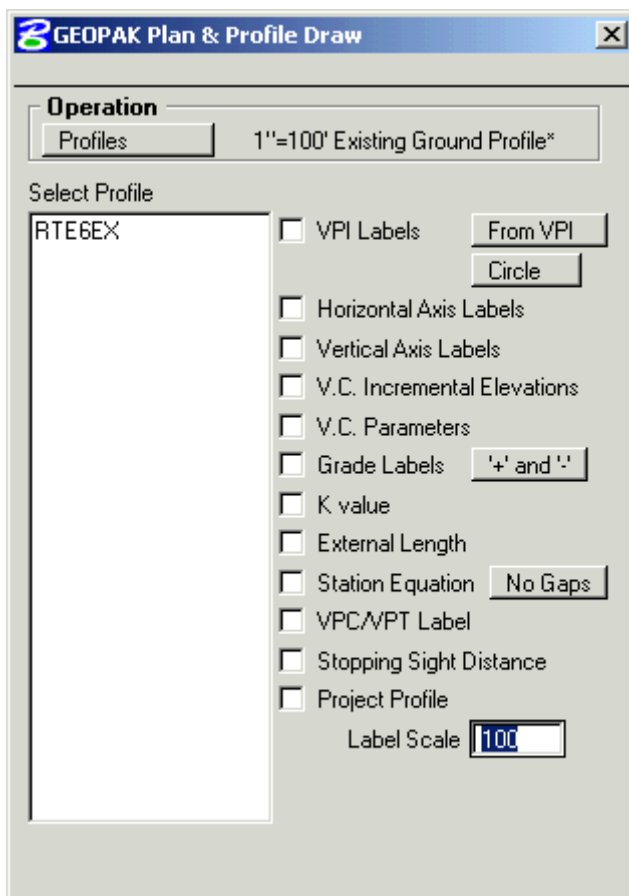
7. Plot the existing ground profile below the plan view geometry using **Design and Computation Manager** item **Drafting Standards \ Profile \ Existing Ground Profiles \ 1"=100' Existing Ground Profile**.

Be sure all options are turned off, and the **Labeling Scale** is set to **100** as shown below in the figure on the left.

Choose the profile **Rte6EX**, which will bring up the dialog shown below in the figure on the right.

Set the following parameters

Horizontal Scale:	<b>100</b>
Vertical Scale:	<b>10</b>
DP Station:	<b>1281+77.12</b>
DP Elevation:	<b>700</b>
DP X and Y:	<i>Press <b>DP</b> and data point on the screen in an open area or enter values shown.</i>
PGL Chain:	<b>Rte6</b>



Press **Draw Cell At XY** and **OK** buttons to draw the profile cell and existing ground.

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8. Use the **Vertical Alignment Generator** to create the following proposed profile with the given settings.

With the **Identify Cell** button, choose the profile cell plotted previously. The dialog should fill in as follows.

Settings

Job Number: 300  
Operator Code: cu  
PGL Chain: RTE6 [Select]  
**Location and Scales**  
Horizontal Scale: 100.000000  
Vertical Scale: 10.000000  
Reference Station: 1281+77.12 R  
Reference Elevation: 700.000000  
X: 45000.000000  
Y: 88000.000000 [DP]  
**Profile Cell**  
[Draw Cell at X,Y] [Identify Cell]  
[OK] [Cancel]

VPI 1	Sta.: 1281+77.20	Fd Grade: -6.40	
VPI 2	Sta.: 1285+35.00	Elevation: 799.50	Vertical Curve L: 600
VPI 3	Sta.: 1298+40.00	Elevation: 799.50	Vertical Curve L: 300
VPI 4	Sta.: 1306+80.00	Bk Grade: -0.01	Vertical Curve L: 660
VPI 5	Sta.: 1311+70.00	Bk Grade: 6.80	

Save the profile as **Rte6PR**.

Save Profile As

Profile: Rte6PR [Select]  
File: j300ocu.inp [Select]  
[OK] [Cancel]

Exist the Profile Generator. Do not save the profile since it was just stored, but save the vertical alignment settings.

## GEOPAK Road for Bridge Exercise 11-1 Vertical Alignments

9. Plot the existing ground profile using **Design and Computation Manager** item **Drafting Standards \ Profile \ Proposed Ground Profiles \ 100 Scale Proposed Ground Profile 1"=100' H & 1"=10' V**.

Turn on the following options as depicted below in the figure on the left.

**VPI Labels**  
**Horizontal Axis Labels**  
**Vertical Axis Labels**  
**V.C. Parameters**  
**Grade Labels**  
**K Value**  
**VPC/VPT Label**  
**Stopping Sight Distance.**

Choose the profile **Rte6PR**, which bring up the dialog shown below in the figure on the right.

**GEOPAK Plan & Profile Draw**

**Operation**

Profiles 100 Scale Proposed Ground Profile

Select Profile

RTE6EX  
RTE6PR

☒ VPI Labels From VPI  
Circle

☒ Horizontal Axis Labels

☒ Vertical Axis Labels

☐ V.C. Incremental Elevations

☒ V.C. Parameters

☒ Grade Labels '+' and '-'

☒ K value

☐ External Length

☐ Station Equation No Gaps

☒ VPC/VPT Label

☒ Stopping Sight Distance

☐ Project Profile

Label Scale 100

**Profile**

RTE6PR

Beginning Station 1281+77.20  
Ending Station 1311+70.00  
Beginning Elevation 822.3992  
Ending Elevation 832.7360  
Maximum Elevation 832.7360  
Minimum Elevation 799.4490

Horizontal Scale 100.00000  
Vertical Scale 10

Beginning Station 1281+77.20  
Ending Station 1311+70.00  
Strip Grade Increment

DP Station 1281+77.12  
DP Elevation 700.000000  
DP X 45000  
DP Y 88000 DP

**Profile Cell**

PGL Chain RTE6 Select

Draw Cell At XY Identify Cell

OK Cancel

Use the **Identify Cell** button in the dialog to select the profile cell placed earlier.

Plot the profile **Rte6PR** by selecting the **OK** button. Close D&C Manager.

## Exercise 11-1 Vertical Alignments      GEOPAK Road for Bridge

10. Complete the **Profile View** and **Location** sections of the **Rte6 Working Alignment**.

Existing Profile: **Rte6EX**

Proposed Profile: **Rte6PR**

**Working Alignment Definition: Rte6**

Plan View  
Pattern  
Shapes  
**Profile View**  
Location  
Cross Section View  
Existing Ground  
Proposed Finish Grade  
DTM

Design File: profile\_J2P0300.dgn [File]  
Existing Profile: RTE6EX [Select]  
Proposed Profile: RTE6PR [Select]  
Begin Station: 1281+77.12  
End Station: 1311+71.27

[OK] [Cancel]

For the **Location** section, use the **Identify Cell** button to choose the profile cell.

**Working Alignment Definition: Rte6**

Plan View  
Pattern  
Shapes  
**Profile View**  
**Location**  
Cross Section View  
Existing Ground  
Proposed Finish Grade  
DTM

Horizontal Scale: 100.000000000000  
Vertical Scale: 10.000000000000  
Station Equation: No Gaps  
DP Station: 1281+77.12 R 1  
DP Elevation: 700.000000000000  
DP X: 45000.0000 [By DP]  
DP Y: 88000.0000

**Profile Cell**  
[Draw Cell at X,Y] [Identify Cell]

[OK] [Cancel]

Accept the changes by clicking on the **OK** button.